3.0 Existing Conditions

3.1 Town Characteristics

Existing town characteristics provide a baseline from which to evaluate future development. Lancaster is a bedroom community serving Clinton, Leominster and Worcester. The Town's current land use primarily includes residential and commercial uses with little industry and a few working farms. Community information and land use are presented below.

Entire Town:

- Total Town Area = 28.2 square miles (*source: MA Department of Housing and Community Development*)
- Total Housing Units = 2,141 (*source: US Census Bureau, Census 2000*)
- Average Household Size = 2.8 (*source: US Census Bureau, Census 2000*)
- Total Population = 7,380 (*source: US Census Bureau, Census 2000*)

Study Area:

- Land within Study Area = 13.0 square miles
- Housing Units within Study Area = 859
- Estimated Residential Population within Study Area = 2,405

The land use categories for the Town of Lancaster were obtained from MassGIS with attributes last updated in 2002. Figure 3-1 identifies the types of land use in the study area. General land use categories provide a quick look at land characteristics that influence stormwater quantity and quality. The drainage subwatershed boundaries are shown on the map to illustrate the types of land uses found within particular drainage areas. The majority of Lancaster's land is comprised of undeveloped forested land, followed by residential uses. Most of the commercial and industrial land uses occur outside of the study area, in the southern end of town. The following table indicates the approximate acres and percentage of the major land use categories within the nine study areas.

Lancaster Land Use		
Landuse	**Acres**	**Percent**
Forest	5730.0	68.7%
Open Land	585.3	7.0%
Low Density Residential	544.8	6.5%
Crop Land	450.6	5.4%
Transportation	311.7	3.7%
Water	290.7	3.5%
Pasture	151.0	1.8%
Institution	78.1	0.9%
Non-Forested Wetland	64.4	0.8%
Commercial	56.9	0.7%
Waste Disposal (includes auto salvage yards)	48.3	0.6%
Urban Open	33.2	0.4%
Industrial	0.0	0.0%

* Open Space land use includes mining, and recreation land.
Source: MassGIS Land Use data layer

3.2 Zoning

The zoning for North Lancaster includes a large area of Light Industry just south of Route 2 and two moderate areas of Limited Office north of Route 2. The remainder of the underlying zoning in North Lancaster is Residential. Figure 3-2 shows existing zoning within the town. In addition, there are two existing overlay districts, one for Floodplains and one is the Water Resources District. Each of these is defined below:

Light Industry: General business district with allowance for recreational facilities

Limited Office: Offices, banks, warehousing, limited manufacturing

Residential: Two acre zoning for single family residences

Floodplains: Floodplain district overlay, prohibits residential developments

Water Resources: Overlay district for aquifers prohibits certain uses such as landfills and sewage disposal of more than 440 gallons of sewage/acre. Also requires a special permit for many activities and for any use that results in imperviousness of greater than 15% or 2,500 square feet of any lot. Recharge is encouraged but with limited pretreatment requirements.

The following table summarizes the size of each zoning district within the study area, as well as other land that doesn't fit into one of the zoning classifications. This other land includes the Route 2 corridor, owned by MA DOT, which is called out separately.

Lancaster Zoning		
Zoning District	**Acres**	**Percent**
Residential	6613.7	79.3%
Light Industry	920.7	11.0%
Limited Office	607.9	7.3%
Other Land		
Other (Transportation)	202.4	2.4%

3.3 Groundwater Aquifers

Groundwater aquifers are a valuable resource for providing businesses and individuals with potable water and sustaining baseflows in surface water bodies such as rivers and streams. The USGS identifies aquifers as low (<50 gpm), moderate (100-300 gpm) or high (>300 gpm) yield. Most public water supply withdrawals are located in the moderate to high yield aquifers.

Lancaster has several moderate yield aquifers within the Town and a few small areas with high yield aquifers. The largest high yield aquifer is located in the southeast corner of Town and also runs through Clinton and Bolton. Lancaster currently has two water supply wells within this aquifer that service the southern portion of Town. A moderate yield aquifer surrounds the high yield aquifer in this same area. Figure 3-3 identifies the aquifers and water supplies within Lancaster.

There are also two large moderate yield aquifers in the northern portion of Town. One is located adjacent to the Nashua River, most of it within the Fort Devens Military Reservation and the other is located near Fort Pond and Spectacle Brook. There are some community wells located within these aquifers, but the Town does not currently have a water supply in these sources.

MA DEP provides some regulation of water supply wells through Zone I and Zone II protective radii. The Zone I is the protective radius around the well or wellfield and is 400 feet for wells with approved yields of 100,000 gpd or greater. The Zone II is defined as the area of the aquifer which contributes water to a well under 180 days of pumping at the approved yield with no recharge from precipitation. It is bounded by the groundwater divides which result from pumping the well and by the contact of the aquifer with less permeable materials such as till or bedrock.

Most communities establish regulations that prohibit certain uses within the Zone I and Zone II, consistent with MA DEP recommendations. However, these are only protective

of existing water supply sources and contributing areas, and offer no protection of the untapped aquifer, which may be needed for future water supply sources.

Lancaster has designated an 'Existing Water Resource Protection District' in the southeast and northern portions of Town. This overlay district provides some additional protection for these areas, however, it does not correspond with the Town's Zone II, leaving much of the Zone II unprotected. Additionally, the remaining aquifer is unprotected, leaving it susceptible to contamination and depletion from future development. A greater level of protection is required to preserve these sources for future use.

3.4 Flooding Conditions

Flood plain information currently available to the community was defined from a 1978 hydrologic and hydraulic study completed by the Federal Emergency Management Agency (FEMA). Local planners have used the study to develop regulations that include standards for the use of land within flood plains, elimination of dangers to health and public safety and prevention of loss and damage to property.

There are about 3,100 acres within the FEMA 100-year flood plain in Lancaster. The flood plains primarily follow streams and rivers with larger areas occurring along the Nashua and North Nashua Rivers and encompassing many of the Town's wetlands. Figure 3-4 identifies the land within Lancaster that is included in the FEMA 100-year flood plain.

Encroachment on flood plains, such as fill and new construction, reduces the flood-carrying capacity, while increasing the flood zone. The Town of Lancaster's Flood Plain Regulations prohibit all residential development in the floodplain, but allow other types of development if an applicant can show that encroachments on the flood plain do not increase the 100-year flood level. Additionally, under the provisions of the Massachusetts Wetlands Protection Act, local conservation commissions have the authority to impose an order of conditions to regulate alterations to wetland and flood plain areas, such as requiring compensation for storage for projects that create an impact to wetlands and/or reduce flood storage.

While the loss of flood plain volume from fill and new construction can be easily calculated, the cumulative effects of increased stormwater runoff from impervious surfaces or land use changes within the watershed are not as easily quantified. Pavement, rooftops, lawns and reduced vegetation create an environment that produces large volumes of stormwater and provides little if any infiltration. The result is the widening of existing floodplains and more frequent flooding.

3.5 Critical Habitats

Lancaster is home to many critical habitats that could be impacted by uncontrolled development. A critical habitat, as defined by the Endangered Species Act, is an area essential to the conservation of a listed species, though the area need not actually be occupied by the species at the time it is designated. Examples of critical habitats include cold water fisheries, critical wetlands and recreational waters. In Lancaster, most of these are within a designated Area of Critical Environmental Concern (ACEC), which comprises 10,100 acres of land in Lancaster. According to 301 CMR 12.00, ACECs are those areas within the Commonwealth where unique clusters of natural and human resource values exist and which are worthy of a high level of concern and protection. The natural and human resources within the ACEC consist of extensive surface waters, wetlands, floodplains and aquifers, as well as interrelated riparian and upland wildlife and rare species habitat, forest, farmlands, and publicly and privately owned open space. Portions of the ACEC are also included in the statewide Scenic Landscape Inventory, and reflect the unique cultural history and natural beauty of the area. The ACEC was designated by the Secretary of Environmental Affairs and includes the Central Nashua River Valley, located in portions of Bolton, Harvard, Lancaster and Leominster. The ACEC designation was based on the quality of the natural characteristics, productivity of the environment, uniqueness of the area, irreversibility and magnitude of impact, threat to the public health through inappropriate use, economic benefits and supporting factors. Figure 3-5 shows critical habitats within Lancaster.

Cold Water Fisheries. Both warm and cold water fisheries are located in Lancaster. Cold water fisheries are considered more critical since the cooler temperatures are more difficult to maintain as development occurs. When land is developed, stormwater runoff is heated from warmed paved surfaces and discharged into water bodies, which in turn raises the temperature of the water. Only one cold water fishery is present in Lancaster. This is the Wekepeke Brook, which supports trout in the Cooks Conservation area.

According to the Massachusetts Division of Water Pollution Control, the North Nashua River and the Nashua River within Lancaster were once classified as cold waters, but have degraded to Class B warm waters. Class B waters are designed as a habitat for fish, other aquatic life and wildlife, and for primary and secondary contact recreation. Where designated they are suitable as a source of public water supply with appropriate treatment, as well as for irrigation and other agricultural uses and for compatible industrial cooling and process uses. Classification is based on dissolved oxygen, temperature, pH, fecal coliform bacteria, solids, color and turbidity, oil and grease, and taste and odor. However, as the water quality in the North Nashua River and the Nashua River improve, it may again support cold water fish and be re-classified as Class B cold waters. In 1991 a brook trout was caught in the North Nashua River below the Cook Conservation Area and attests to the improving waters associated with the North Nashua River and it tributaries.

Critical Wetlands. There is an extensive system of wetlands located in Lancaster. These wetlands are associated with the North Nashua River and Nashua River and their tributaries and are located within the ACEC. Additional critical wetlands that are also located within the ACEC are those associated with the Cooks Conservation Area and the Lancaster State Forest. The Cooks Conservation Area consists of 100 acres of wetlands.

The wetlands associated with the North Nashua and Nashua Rivers have been identified as priority wetlands by both the North American Waterfowl Management Plan and the Emergency Wetlands Resource Act of 1986, due to their critical importance in supporting waterfowl of the Atlantic Flyway. Since the Nashua River is a tributary to the Merrimack River, its wetlands were also cited on the U.S. Environmental Protection Agency Priority Wetlands of New England listing in 1987. The lands surrounding the various types of wetlands are also protected to help prevent contamination and provide a more varied wildlife habitat. There are many types of wetlands along the North Nashua and Nashua rivers which include wet sedge meadow, bushy oxbow swamps to forested wetlands and flood plains.

Recreational Waters. Recreational waters include waters designated for swimming, boating, fishing, and wildlife viewing. These waters include lakes, ponds, rivers, and brooks. Lancaster has several recreational waters in the study area which include:

- Turner Pond – Turner Pond is located in the northern end of Lancaster bordering Lunenburg. Turner Pond has few waterfront houses and is used for swimming, non-motorized boating, fishing, and wildlife viewing.

- Fort Pond – Fort Pond is located in the northern part of Lancaster just south of Turner Pond. Fort Pond has several waterfront houses, and a boat ramp. Fort Pond is used for swimming, motorized and non-motorized boating, fishing, and wildlife viewing.

- Little Spectacle Pond – Little Spectacle Pond is located just north of Spectacle Pond and just south of Route 2. Little Spectacle Pond has some waterfront housing and public access to the pond is limited. Little Spectacle Pond is used for swimming, motorized and non-motorized boating, fishing, and wildlife viewing.

- Spectacle Pond – Spectacle Pond is located just south of Little Spectacle Pond and Route 2. Spectacle Pond has several waterfront housing and public access to the pond is limited to the town beach. Spectacle Pond is used for swimming, motorized and non-motorized boating, fishing, and wildlife viewing. However, there is no public boat ramp for motorized boating. Access for non-motorized boating is available through the town beach.

- White Pond – White Pond is located on the northwestern side of Lancaster with a portion of the pond located in Leominster. White Pond has some waterfront

housing and there is no public boat access ramp. White Pond is used for swimming, non-motorized boating, fishing, and wildlife viewing.

- Bartlett Pond – Bartlett Pond is located in the western portion of Lancaster, and access to the pond is gained off Route 117. Bartlett Pond is a small pond used for non-motorized boating, fishing, and wildlife viewing.

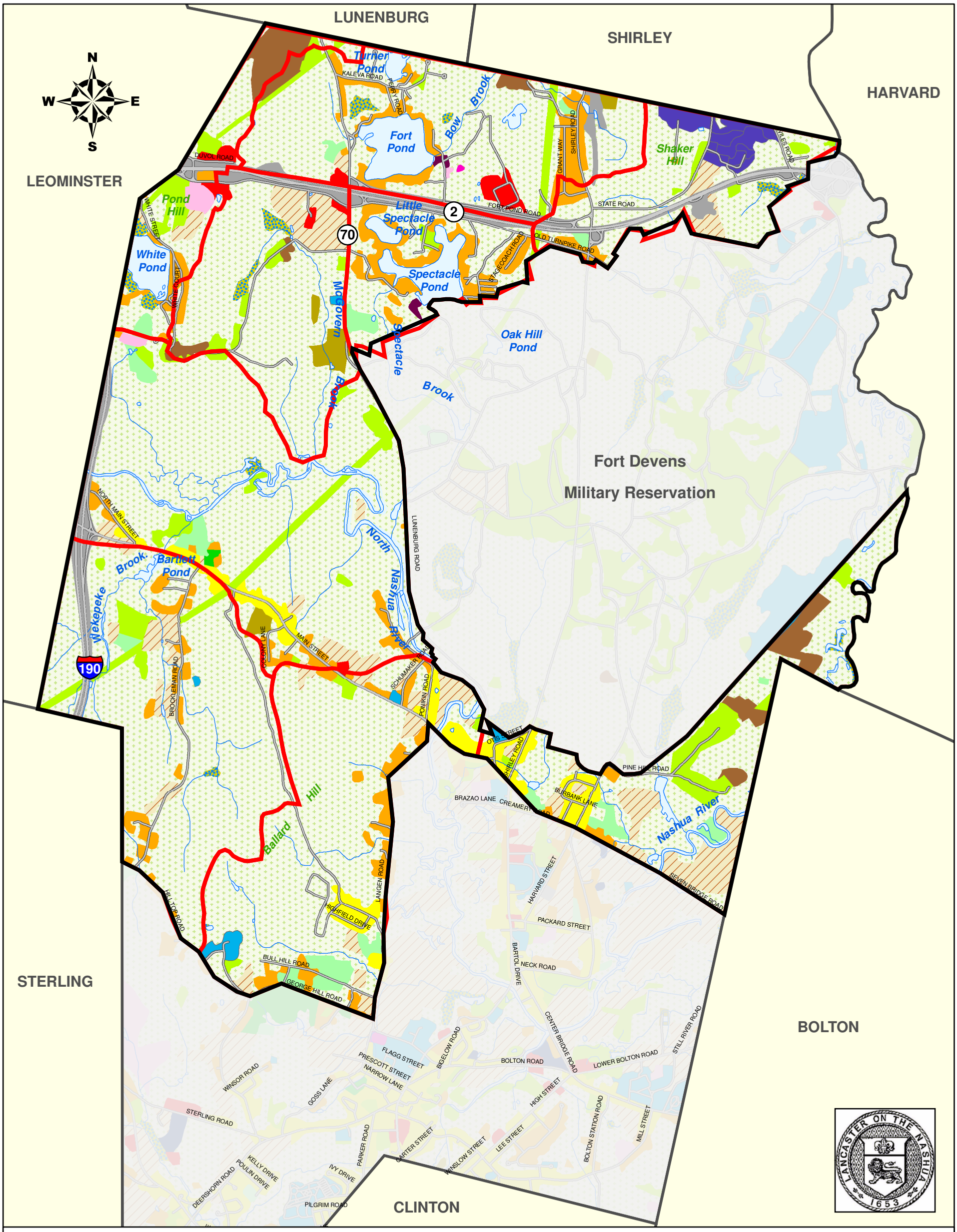
- McGovern Brook – McGovern Brook is located within the northern part of Lancaster and flows south through Lancaster State Forest and converges with the North Nashua River within Cooks Conservation Area. McGovern Brook is used for fishing and wildlife viewing.

- Spectacle Brook – Spectacle Brook flows south out of Spectacle Pond and joins with the North Nashua River just south of Cooks Conservation Area. Spectacle Brook is used for fishing and wildlife viewing.

- Wekepeke Brook – Wekepeke Brook is located in the western portion of Lancaster and flows north out of Leominster through Bartlett Pond and joins with the North Nashua River just southwest of Lancaster State Forest. Wekepeke Brook is used for fishing and wildlife viewing.

- North Nashua River – The North Nashua River flows southeast through Lancaster to the Nashua River. The North Nashua River is used for fishing, non-motorized boating (canoeing), and wildlife viewing. There are several boat ramps located within Lancaster and in the surrounding towns.

- Nashua River – The Nashua River starts in South Lancaster and flows northeast through Lancaster. The Nashua River is used for fishing, non-motorized boating (canoeing), and wildlife viewing. Access to the River is gained by boat ramps located along the Nashua River.



LEGEND

Land Use

- Crop Land
- Pasture
- Forest
- Non-Forested Wetland
- Mining
- Open Land
- Participation Recreation
- Spectator Recreation
- Water-Based Recreation
- Medium Density Residential
- Low Density Residential
- Commercial
- Industrial
- Urban Open
- Transportation
- Waste Disposal
- Water
- Woody Perennial

Hydrography

- Lake, Pond
- Stream, Brook
- IWRM Study Area

Data Source: MassGIS

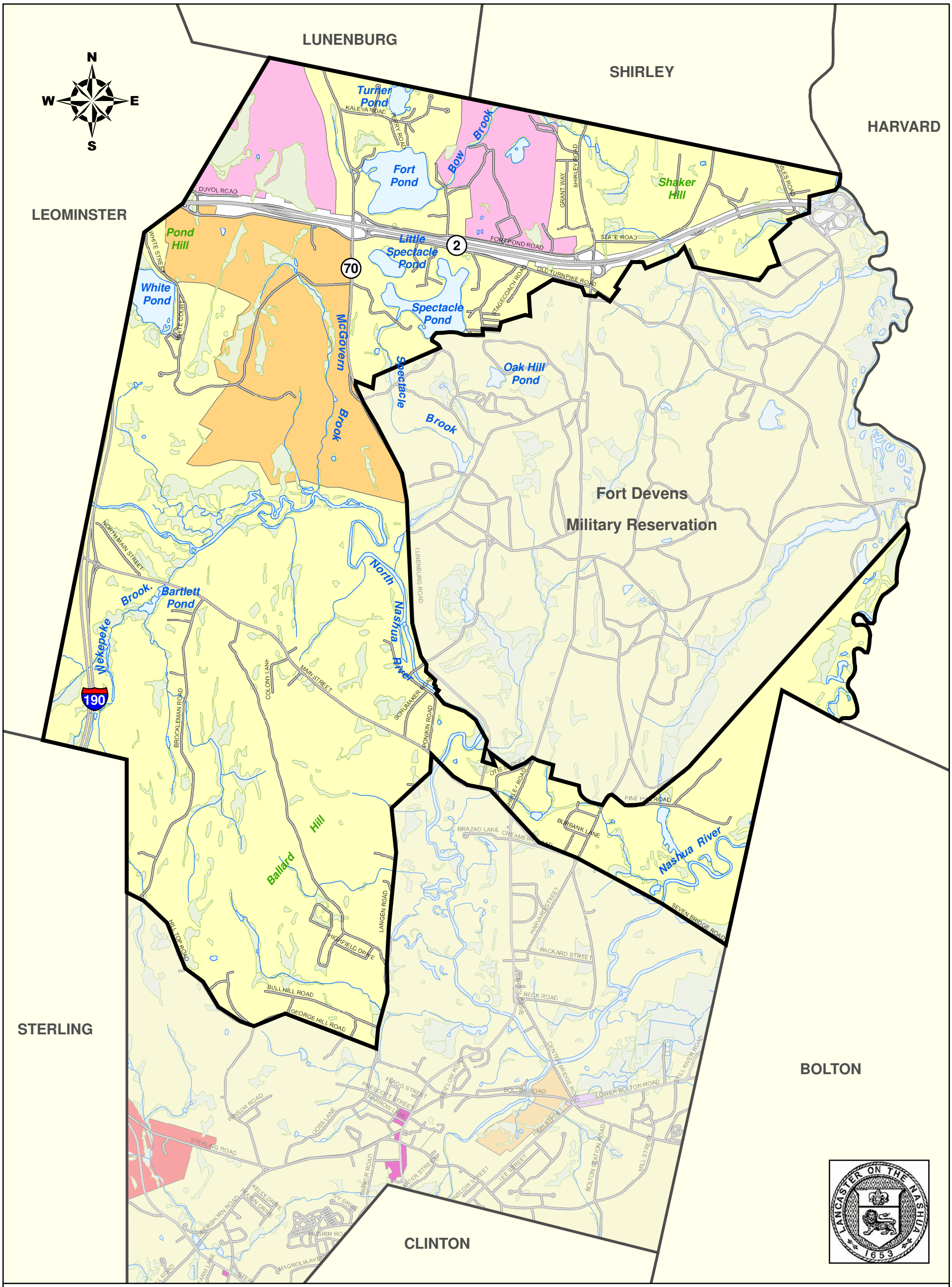
0 2,000 4,000 6,000 8,000 10,000 Feet

Figure 3-1

Land Use

Lancaster, MA

Comprehensive Environmental Inc.



LEGEND

Zoning Boundaries

- Residential
- Neighborhood Business
- Highway Business
- Limited Office
- Light Industry
- General Indusrty

Hydrography

- Lake, Pond
- DEP wetlands
- Stream, Brook
- IWRM Study Area

Data Sources: Town of Lancaster, MassGIS

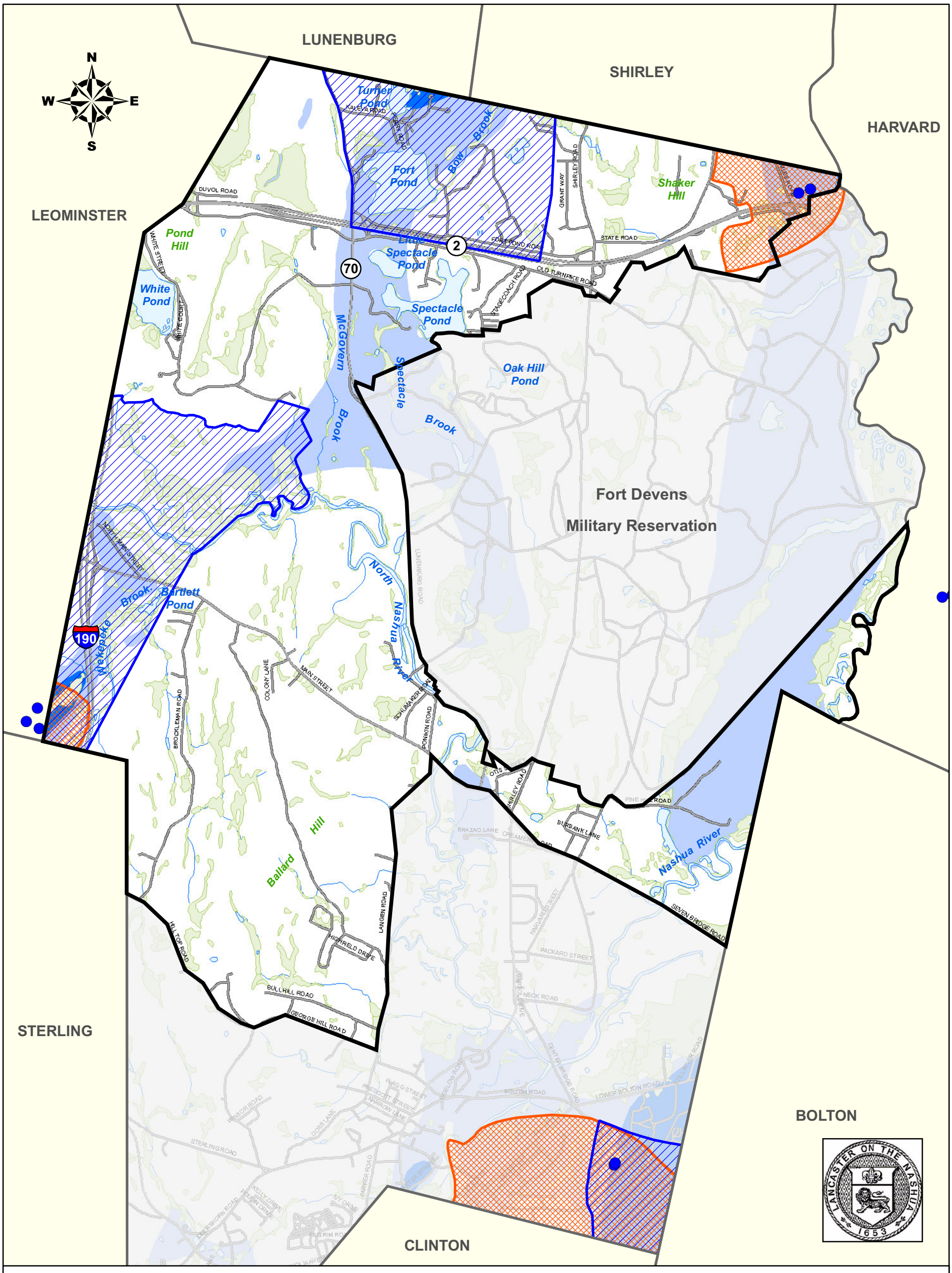
0 2,000 4,000 6,000 8,000 10,000 Feet

Figure 3-2

Zoning Map

Lancaster, MA

Comprehensive Environmental Inc.



LEGEND

- Public Water Supply
- ZONE II - Recharge Area
- Water Resource District

Aquifer Yield (Gallons per Minutes)

- 100-300
- >300

Hydrography

- Lake, Pond
- DEP wetlands
- Stream, Brook
- IWRM Study Area

Data Sources: Town of Lancaster, MassGIS, MADEP

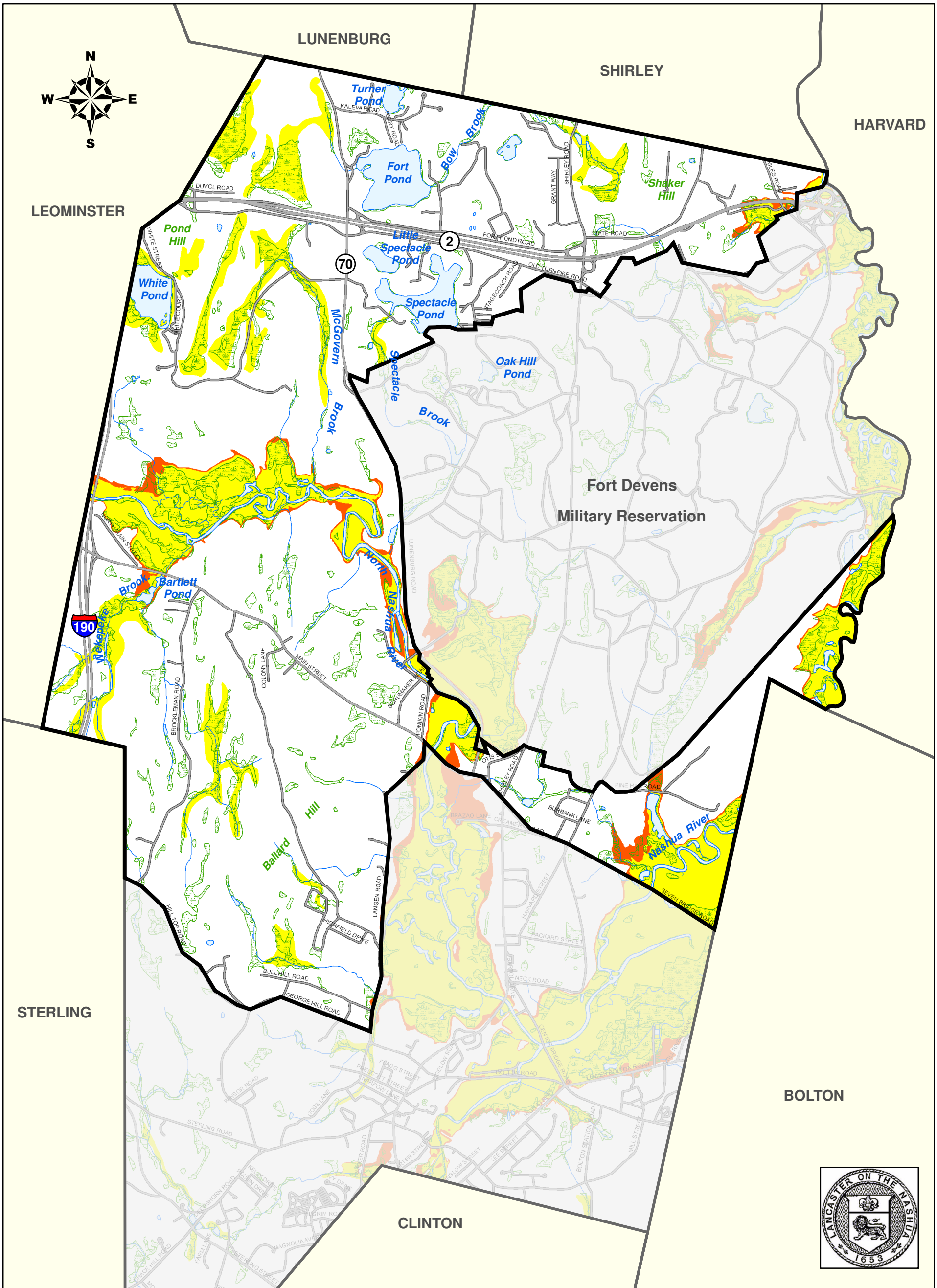
0 2,000 4,000 6,000 8,000 10,000 Feet

Figure 3-3

Water Resources

Lancaster, MA

Comprehensive Environmental Inc.



LEGEND

FEMA Flood Zones

- Inundated by 100-Year Storm
- Inundated by 500-Year Storm
- IWRM Study Area

Hydrography

- Lake, Pond
- DEP wetlands
- Stream, Brook

Data Sources: Town of Lancaster, MassGIS, MADEP, FEMA

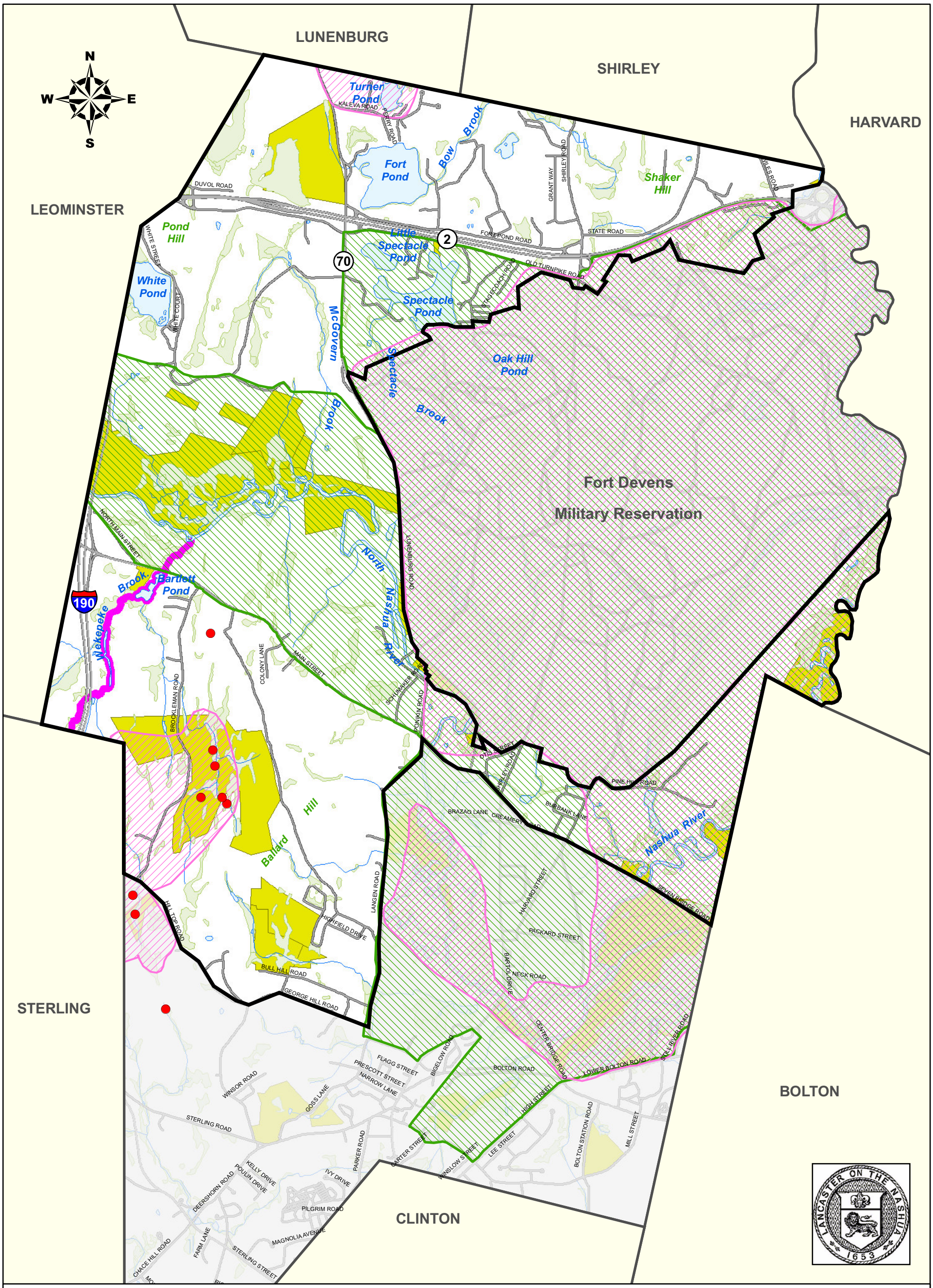
0 2,000 4,000 6,000 8,000 10,000 Feet

Figure 3-4

Flood Zones

Lancaster, MA

Comprehensive Environmental Inc.



LEGEND

- Certified Vernal Pool
- Priority Habitats of Rare Species
- ACEC
- Protected and Recreational Open Space
- Cold Water Fishery

Hydrography

- Lake, Pond
- DEP wetlands
- Stream, Brook
- IWRM Study Area

Data Sources: Town of Lancaster, MassGIS, CEI

0 2,000 4,000 6,000 8,000 10,000 Feet

Figure 3-5

Critical Habitats

Lancaster, MA

Comprehensive Environmental Inc.